

IN THE SPECIFICATION:

Please replace paragraph number [0003] with the following rewritten paragraph:

[0003] Two-way electrical switches typically have two ~~positions~~, positions, an “on” position, in which power is provided to an electrically operated apparatus in communication and under control of the switch, and an “off” position, in which power is not provided to the electrically operated apparatus. Conventional, wall-mounted light switches are an example of such two-way electrical switches. A typical conventional, wall-mounted light switch may be oriented in a somewhat upwardly facing direction or in a somewhat downwardly facing direction, with one such direction comprising the “on” position and the other direction comprising the “off” position. Orientation of the switch is effected manually, typically with the fingers of a user of the electrically operated apparatus.

Please replace paragraph number [0006] with the following rewritten paragraph:

[0006] Hands-free electrical switches, which lack many of these undesirable features, are also known. Such switches are typically controlled by motion sensors, which may sense any type of motion close to the switch or any type of motion a relatively far distance therefrom. Typically, motion-sensing electrical switches include a single motion sensor. The motion sensor may be configured to cause the switch to both provide power to (turn “on”) or terminate the supply ~~of~~ of power to (turn “off”) an electrical apparatus in communication therewith. Alternatively, a motion-sensing electrical switch may just cause the switch to supply power to an electrical apparatus in communication therewith. Some hands-free, motion sensing electrical switches also include manual “on/off” buttons, which may be depressed to turn an electrical apparatus on or off when the motion sensor does not provide the desired electrical switching function.

Please replace paragraph number [0009] with the following rewritten paragraph:

[0009] The present invention includes a solid-state hands-free electrical switch, which is also referred to herein as a “digital switch.” A hands-free electrical switch according to the present invention includes a ~~motion~~motion-detection element with one or more detectors, or sensors, that are configured to detect, or sense, substantially linear (*e.g.*, upward and downward) movement of a finger or hand of a user or another object, as well as one or more position indicators that visually display an orientation of the electrical switch. Additionally, the detection element of a hands-free electrical switch of the present invention may include a pair of emitters, which emit electromagnetic radiation that may be reflected, then detected, by the one or more detectors.

Please replace paragraph number [0015] with the following rewritten paragraph:

[0015] Optionally, instead of sensing motion, such a hands-free electrical switch may include a pair of detectors that are configured to detect electromagnetic radiation of one or more wavelengths. Additionally, the hands-free electrical switch may include a pair of emitters, one associated with each detector, that~~are~~is configured to emit electromagnetic radiation of a wavelength that may be detected by the corresponding detector. As an object, such as a hand, passes over each emitter, electromagnetic radiation emitted therefrom is reflected back to the corresponding detector. The presence or absence of a switching motion is detected and operation of the switch occurs as described above with respect to the motion-sensing embodiment~~of~~of the hands-free electrical switch.

Please replace paragraph number [0028] with the following rewritten paragraph:

[0028] As shown in~~FIG. 1~~, FIGs. 1 and 2, interior 30 of digital switch 10 includes an upper region 16 and a lower region 18, which roughly correspond to the upper and lower regions of a conventional, manually operated wall-mountable electrical switch. The exterior features of a motion detection element 19, which includes emitters 20, 22, a detector 21, and visual indicators 24, 26, are exposed through faceplate 12, with emitter 20 and indicator 24 being

located in upper region 16, emitter 22 and indicator 26 being located in lower region 18, and detector 21 being located between upper region 16 and lower region 18.

Please replace paragraph number [0030] with the following rewritten paragraph:

[0030] Processor 33 communicates with and controls operation of both a communication link 34 (FIG. 3) and a driver 35 of known types. Driver 35 communicates with terminals (not shown) that are configured to have wires 60, 62 electrically connected thereto. Communication link 34 may also communicate with at least one wire 64, which facilitates communication between digital switch 10 and other components (*e.g.*, another digital switch 10 positioned along the same circuit, a device with which digital switch 10 is networked, such as a computer, a personal data assistant (PDA), or the like, etc.). The terminals and wires 60, 62 are at least partially contained within a housing 50 of digital switch 10.

Please replace paragraph number [0033] with the following rewritten paragraph:

[0033] So-called “jumpers” 36, 37 may be positioned in communication with pins 38 of processor 33 or between and establish communication between appropriate pairs of pins 38 of processor 33, establishing communication therebetween, to impart digital switch 10 with optional functionality. For example, jumper 36 may be included to impart digital switch 10 with the ability to control the power conveyed therethrough, which, when digital switch 10 communicates with a light, provides dimming capability. Jumper 37 ~~may be~~ may determine whether digital switch 10 operates as a “master” switch, which actually controls the flow of electrical current through a circuit ~~along with~~ which digital switch 10 is positioned, or as a “slave” switch, which communicates a desired action (*e.g.*, switching on or off, dimming, etc.) to a master switch on the same circuit.

Please replace paragraph number [0034] with the following rewritten paragraph:

[0034] Communication link 34 may, by way of example only, comprise an optically coupled triac, such as that manufactured by Infineon Technologies AG of Munich, Germany, as

part no. IL420. Communication link 34, which may ~~communicates~~ communicate with external components by way of one or more wires 64 of the circuit along which digital switch 10 is positioned, provides an interface between the logic elements (which operate under direct current (DC)) of digital switch 10, such as processor 33, and other units, including other digital switches 10 and devices (*e.g.*, computers, PDAs, etc.).

Please replace paragraph number [0036] with the following rewritten paragraph:

[0036] A driver and receiver of communication link 34 may be configured to relay information about the switch status and signals to make dimming changes (*e.g.*, a 120 V alternating current (AC)), such as the phase of the current (*e.g.*, the location of the AC along a sine wave at a particular point in time) to processor 33. For example, if processor 33 causes the LED of the driver to be illuminated for an entire half cycle (about 8 ms), the driver of communication link 34 may communicate to all digital switches 10 on the communication line (*e.g.*, wire 64) to turn “on.” If LED is illuminated for three-fourths of a half cycle (*i.e.*, about 6 ms), the communication is for digital switch 10 to turn “off.” The gate of driver-~~34~~ 35 may communicate to ramp up the power or intensity of the electrical signal conveyed therethrough when illuminated by the LED for one-half of a half cycle (*i.e.*, about 4 ms). The gate of driver-~~34~~ 35 may communicate to ramp down the power or intensity of the electrical signal conveyed therethrough when illuminated by the LED for one-fourth of a half cycle (*i.e.*, about 2 ms).

Please replace paragraph number [0040] with the following rewritten paragraph:

[0040] Emitters 20, 22 emit electromagnetic radiation of one or more desired wavelengths. By way of example only, emitters 20, 22 may comprise LEDs of a known type. The LEDs may be configured to emit electromagnetic radiation in the infrared light region of the electromagnetic spectrum. Without limiting the scope of the present invention, the LEDs may have a modulation, or carrier, frequency of about 40 kHz or greater (*e.g.*, 56 kHz), which matches the modulation, or carrier frequency of ~~receiver~~ detector 21.

Please replace paragraph number [0043] with the following rewritten paragraph:

[0043] The intensity of electromagnetic radiation emitted by emitters 20, 22 may be tailored to set a distance range in which motion across digital switch 10 is detected. By way of example only, emitters 20, 22 may be configured to emit electromagnetic radiation at an intensity which is suitable for detecting a substantially linear (*e.g.*, upward or downward) sweeping, or switching, motion that occurs on ~~interface cover 14~~ faceplate 12 (FIGs. 1 and 2) of digital switch 10, about a half an inch from ~~interface cover 14~~, faceplate 12, up to about six inches from ~~interface cover 14~~, faceplate 12, or a greater distance from ~~interface cover 14~~ faceplate 12.

Please replace paragraph number [0044] with the following rewritten paragraph:

[0044] Detector 21 detects at least one wavelength of electromagnetic radiation emitted by one or both emitters 20, 22. Thus, the carrier frequency of detector 21 substantially matches the carrier frequency of a corresponding emitter or emitters 20, 22 (*e.g.*, about 56 kHz or greater). By way of nonlimiting example, detector 21 may comprise an infrared receiver module, such as that manufactured by Vishay Intertechnology, Inc., of Malvern, Pennsylvania, as a ~~TSOP48~~, TSOP48 series miniaturized receiver (*e.g.*, the TSOP4840 miniaturized receiver operates at a modulation, or carrier, frequency of 40 kHz; the TSOP4856 miniaturized receiver operates at a modulation, or carrier, frequency of 56 kHz).

Please replace paragraph number [0047] with the following rewritten paragraph:

[0047] Each of the electronic elements of digital switch 10 ~~may~~ may be powered directly or indirectly with a regulator (not shown in FIG. 3) of desired voltage, such as a 5 V regulator of a known type, so as to prevent each such element from being damaged by voltage spikes.

Please replace paragraph number [0048] with the following rewritten paragraph:

[0048] Of course, a hands-free electrical switch (*e.g.*, digital switch 10) that incorporates teachings of the present invention may also include other features, such as communication ports, that communicate with a processor of the switch (*e.g.*, processor 33) and facilitate remote and/or programmed operation of the switch by use of an appropriately configured remote control unit, a computer or computer network, a security system, another hands-free electrical switch, or the like. The processor of a hands-free electrical switch of the present invention (*e.g.*, processor 33 of digital switch 10) may also be programmed to operate ~~digital-switch~~ switch 10 at certain times of the day, in certain lighting conditions, or otherwise, as known in the art.

Please replace paragraph number [0050] with the following rewritten paragraph:

[0050] The programming under which processor 33 operates may be configured to cause the switch to change “position” only after a specified number or range of pulses of electromagnetic radiation from ~~one-emitter~~, emitter 20, 22 (*e.g.*, two or more pulses), then the other emitter 22, 20 (*e.g.*, two or more pulses), is sensed by detector 21. Processor 33 may be programmed to sense an intentional switching motion even if one or more pulses are not reflected toward or sensed by detector 21. Fewer pulses at each phase than ~~the~~ a predetermined minimum, which might be caused by too quick of a sweeping, or switching, motion, or more pulses at each phase than a predetermined maximum, which might be caused by too slow of a sweeping, or switching, motion, would not be considered by processor 33 to be an intentional switching motion. When processor 33 determines that the number of pulses within acceptable ranges and an acceptable sequence of pulses have been sensed, processor 33 determines whether or not the direction of motion over digital switch 10 indicates that the switch “position” should be changed. If so, processor 33 initiates the desired operation of driver 35 (*e.g.*, open (turn “off”) or close (turn “on”) an electrical circuit in communication therewith by way of terminals 52, 54). If the direction of sensed motion over digital switch 10 indicates that the switch should remain in the

same position, processor 33 maintains the *status quo* by not sending signals to driver 35. Thus, the state (*i.e.*, open or closed) of the electrical circuit is not changed.

Please replace paragraph number [0051] with the following rewritten paragraph:

[0051] As another example of the use of digital switch 10, dimming may be effected by holding a finger, hand, or an object over or in front of only one emitter 20, 22 for a prolonged period of time (*e.g.*, greater than one second, two seconds or more, etc.). For example, if a finger is placed over an upper emitter 20, an intensity of power conveyed through the circuit along which digital switch 10 is positioned may be increased (*e.g.*, ramp-up dimming, or increasing the intensity, of a light). Conversely, if a finger is placed in proximity to a lower emitter 22, an intensity of power conveyed through the circuit may be decreased. Such an increase or decrease in intensity may be effected in ~~an~~ a substantially continuous fashion, or incrementally, until the desired intensity of power is being conducted through the circuit, at which point the finger, hand, or other object is removed from proximity to the emitter 20, 22.

Please replace paragraph number [0053] with the following rewritten paragraph:

[0053] When a hands-free electrical switch (*e.g.*, digital switch 10 in FIGs. 1 through 3) according to the present invention is part of a so-called “three-way switch” or other circuit including multiple switches, a processor of each switch (*e.g.*, processor 33 of digital switch 10) may communicate the switch “position” to the processor of each other switch in the circuit. Each processor 33 may then cause its corresponding visual indicators 24, 26, to properly represent the current state of the multi-switch circuit.

Please replace paragraph number [0055] with the following rewritten paragraph:

[0055] The exterior ~~features~~ features of digital switch 10' are illustrated in FIG. 5. Digital switch 10' includes a faceplate 12' which laterally surrounds an interface cover 14'. Interface cover 14' is configured to be coupled with an interior 30' (FIG. 6) and housing 50' (FIG. 6) of digital switch 10', which are at least partially received within a wall (not shown) and

to be electrically connected to wires 60, 62 (FIG. 6) within the wall and an electrical circuit of which the wiring is a part. Faceplate 12' is configured to be secured to the wall in such a way as to cover a receptacle, such as a hole, in the wall within which interface cover 14' is received.

Please replace paragraph number [0057] with the following rewritten paragraph:

[0057] Additional elements of digital switch 10' are shown in FIG. 6. As shown, an interior 30' of digital switch 10' includes a circuit board or other substrate 32' which carries various internal elements of digital switch 10', including, without limitation, optical sensors 20', 22', which make up a motion detection element 19' (FIG. 5), and visual indicators 24', 26'. As will be described in further detail hereinafter, substrate 32' also includes circuitry which may communicate electrically with a housing 50' of digital switch 10' which, in turn, may include terminals 52', 54' that are configured to have wires 60', 62' electrically connected thereto.

Please replace paragraph number [0059] with the following rewritten paragraph:

[0059] Electronic toggle switch 42', in turn, is in electrical communication with an AC (alternating current) photo switch 44', which provides an interface between the DC (direct current) electronic elements of digital switch 10' and wires ~~60, 62~~ 60', 62' (FIG. 6), which are a part of an alternating current network. By way of example and not limitation, AC photo switch 44' may comprise an IGBT photovoltaic relay, single pole, normally open 0-280 VAC or 0-400 VDC 1.0 A AC/DC switch, such as that available from International Rectifier as part no. PVX6012.

Please replace paragraph number [0061] with the following rewritten paragraph:

[0061] As another option, an audio element 48 of a type known in the art (*e.g.*, a digital audio chip) may be associated with electronic toggle switch 42' such that an audio signal (*e.g.*, the sound of a conventional light switch clicking) occurs each time electronic toggle switch ~~42~~ 42' operates.



Please replace paragraph number [0064] with the following rewritten paragraph:

[0064] By requiring movement similar to that of conventional, wall-mounted electrical switches, a hands-free electrical switch that incorporates teachings of the present invention may provide a user with a physiological experience similar to that provided by use of a conventional, wall-mounted electrical switch. The visual indication of the position of the switch may enhance the physiological experience for the user. The user's physiological experience may be further enhanced by including one or more components that mimic a switching sound or provide another audible indicator ~~that~~ that a switch has been effected may further enhance the user's physiological experience.